UMATILLA RIVER BASIN ANAD FISH HABITAT ENHANCEMENT 8710001

SHORT DESCRIPTION:
Conduct watershed project planning and education process by identifying problems and developing creative solutions to land use problems impacting fisheries habitat in the Umatilla River Basin. Implement maintenance and continued instream and riparian habitat enhancement projects to provide benefits for spring & fall chinook salmon, coho salmon, and steelhead.

SPONSOR/CONTRACTOR: CTUIR
Confederated Tribes of the Umatilla Indian Reservation
Gary James, Department of Natural Resources, Fisheries Program Manager
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SUB-CONTRACTORS:
Various Construction Contracts: 1) fence contracts, 2) heavy equipment contracts, or 3) Umatilla County Weed Control, 4) survey contracts, and 5) Earth Conservation Corps/Umatilla Salmon Corps.

GOALS

GENERAL:
Supports a healthy Columbia basin, Increases run sizes or populations, Provides needed habitat protection

ANADROMOUS FISH:
Habitat or tributary passage

NPPC PROGRAM MEASURE:
7.6, 7.7, 7.8

RELATION TO MEASURE:
This project targets the protection and improvement of habitat conditions affecting production of salmon and steelhead on a comprehensive watershed management basis through local, tribal, state and federal cooperation, coordination efforts and habitat enhancements.

OTHER PLANNING DOCUMENTS:
Wy Kan Ush Me Wa Kush Wit, The Umatilla Subbasin Plan, and the Umatilla River Drainage Anadromous Fish Habitat Improvement Implementation Plan.

TARGET STOCK	LIFE STAGE	MGMT CODE (see below)
Umatilla River/Tanner Creek Coho	Smolt/Adult	S
Umatilla River Mid-Columbia Bright Fall Chinook	Smolt/Adult	S
Umatilla River/Carson Spring Chinook	Smolt/Adult	S
Umatilla River Summer Steelhead	Smolt/Adult	S, W,

AFFECTED STOCK	BENEFIT OR DETRIMENT
Resident Fish Populations (including bull trout)	Beneficial

BACKGROUND

Stream name:
Umatilla River and Tributaries

LAND AREA INFORMATION
Subbasin:
Umatilla
Land ownership:
Private
Acres affected:
1,465,600 acres in Umatilla river Watershed

HISTORY:
The Confederated Tribes of the Umatilla Indian Reservation, Umatilla National Forest and Oregon Department of Fish & Wildlife cooperatively developed a comprehensive five year habitat implementation plan in 1988. This plan identified anadromous fish habitat problems in the Umatilla River Basin and provided solutions, goals and priorities for addressing these problems. The current habitat enhancement project is a continuation of this initial effort. Stream habitat conditions in the Umatilla Basin range from pristine (need protection) to severely degraded (need enhancement). The project continues to identify and improve degraded riparian and instream conditions annually. If natural production goals are to be met in the basin, habitat limiting factors must continue to be addressed.

BIOLOGICAL RESULTS ACHIEVED:
Salmon runs were extinct in the Umatilla Basin prior to implementation of the Umatilla Fish Restoration Program. The habitat enhancement project is a key component of this program and has resulted in 12.75 river miles of improvements. Habitat improvements have included installation of riparian fencing, revegetation of streambanks and surrounding flood plain areas and placement of instream/bank stabilization structures. These efforts benefit fish by improving water quality parameters, increasing sub-surface/instream flow levels and providing more diverse habitat. This work and continued habitat improvements is expected to greatly increase the natural production capability of salmon and steelhead in the Umatilla River Basin.

PROJECT REPORTS AND PAPERS:
Contractor has submitted an Annual Report each year since project inception.

ADAPTIVE MANAGEMENT IMPLICATIONS:
Habitat enhancements implemented under this project will continue to result in the following benefits: 1) increased water table saturation zones and instream flow levels during summer months, 2) slower water velocities and narrower stream channels, 3) more diverse native riparian vegetation communities to assist with bank stabilization, provide recruitable wood for instream cover, increase shading, increase insect drop and filter sediments. These combined benefits will aide anadromous salmonids by improving overall water quality, increasing and diversifying fisheries habitat and increasing potential food sources (macroinvertebrates).

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:
Improvements will be monitored following implementation to evaluate short and long-term effects of instream and riparian area enhancements on fish habitat, riparian vegetation recovery, macroinvertebrate presence/diversity and water quality. Overall success of the project (effectiveness and educational value) will be measured by evaluating public participation and landowner cooperation.

CRITICAL UNCERTAINTIES:
Physical surveys conducted in cooperation with CTUIR's Natural Production and Monitoring Program indicate that quality habitat is limited in the Umatilla River Basin. A critically impacted life history state currently affecting the natural production of steelhead and chinook salmon is juvenile rearing (egg deposition to smolting). Also, high quality habitat areas may become fully seeded at some point in the not too distant future. Therefore, there is a need to continue to enhance watershed conditions and expand available spawning and rearing areas in the basin. Improvements, such as those mentioned under BIOLOGICAL NEED will help achieve this objective.

BIOLOGICAL NEED:
Former and current detrimental land use practices continue to impact anadromous fisheries production in the Umatilla River Basin. High summer stream temperatures, nonpoint source pollution (primarily agricultural runoff from cropland areas), lack of native riparian vegetation, low or intermittent stream flows, lack of habitat diversity, and unstable stream channels limit available salmonid spawning/rearing areas throughout the basin. Habitat improvements including riparian fence construction, installation of sediment retention structures and revegetation of riparian corridor areas will diversify habitat and improve water quality/quantity conditions for fish and macroinvertebrates.

HYPOTHESIS TO BE TESTED:
N/A

ALTERNATIVE APPROACHES:
An alternative approach to developing 15 year easements with landowners would be to acquire private properties in riparian corridor areas throughout the basin. This approach was rejected at this time because of the additional funding that would be required to accomplish property purchases. Some level of habitat restoration would still need to occur on purchased properties. However, this concept should be considered in the future because it would provide permanent protection and in the long-term would be more cost effective.

JUSTIFICATION FOR PLANNING:
N/A

METHODS:
Land use practices impacting fish production capability will continue to be identified throughout the watershed through baseline data collection, GIS analysis and public scoping meetings. Long-term solutions to land use problems will be developed cooperatively with landowners and other resource agencies in the basin. Remedial measures will be implemented to reduce or eliminate detrimental land management activities where possible. Physical factors which limit production capability will be addressed through enhancement of instream and riparian habitats. Uncooperative land owners may limit the proposed methods in certain instances.

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase **Start** 1) 1987 2) 1993 **End** 1) 1988 2) on-going **Subcontractor**

Task 1) Coordinate with USFWS and ODFW personnel to develop a comprehensive five year habitat implementation plan for the Umatilla Basin; and 2) Identify additional habitat deficiencies in the Umatilla Basin on a watershed level and develop solutions to detrimental land use practices through public scoping processes.

Implementation Phase **Start** 1) 1988 2) 1993 **End** 1) 1992 2) on-going **Subcontractor**

Task 1) Enhancement stream habitat conditions in the Umatilla River Basin on the Umatilla Indian Reservation by implementing instream and riparian improvements; and 2) Continue BPA funding to maintain existing habitat improvements and initiate new instream/riparian enhancement projects on a watershed level throughout the Umatilla River Basin.

O&M Phase **Start** 1989 **End** On-going **Subcontractor**

Task Maintain habitat enhancement project areas. The physical condition of all improvements and general stream hydraulics will be evaluated in project areas following spring high flow events to determine effectiveness and prescribe maintenance to fencing and instream structures if required.

PROJECT COMPLETION DATE:
On-going

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:
Landowner cooperation and in-stream permit approvals.

OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:

Benefits expected from habitat enhancements have previously been described under ADAPTIVE MANAGEMENT IMPLICATIONS. Overall, these benefits should improve water quality parameters, expand and diversify fisheries habitat and increase potential food sources (macroinvertebrates).

Present utilization and convservation potential of target population or area:
Livestock has been excluded from habitat enhancement project areas and the riparian corridors are currently in an early state of recovery. Continued livestock exclusion and/or modification of grazing practices will be required for several decades to recover anadromous fisheries habitat to full potential.

Assumed historic status of utilization and conservation potential:
Historically (prior to construction of Three Mile Dam), spawning and rearing areas within current project areas were seeded to full potential.

Long term expected utilization and conservation potential for target population or habitat:
Watershed conditions will improve to provide expanded spawning and rearing areas to meet natural production goals in the Umatilla Basin.

Contribution toward long-term goal:
Improved water quality parameters (decreases in sediment input and stream temperatures), increases in aquatic macroinvertebrates, more diverse native riparian vegetation communities and increases in instream flow levels will improve adult and juvenile salmonid survival and fitness.

Indirect biological or environmental changes:
Riparian enhancements will provide thermal cover, nesting and roosting habitat, forage and side channel/wetland areas for wildlife species.

Physical products:
Approximately 12.75 stream miles on private properties have been enhanced under this project in the Umatilla Basin.

Environmental attributes affected by the project:
Water temperatures will decrease, sediment loads will decrease, instream flow and sub-surface levels will increase, and riparian vegetation communities will increase as a result of this project. Livestock grazing will continue to be restricted from project areas.

Changes assumed or expected for affected environmental attributes:
Near term changes will include narrowing of stream channels, increased stream channel shading, decreased stream bank erosion, increased instream cover and increases in macroinvertebrate populations. Long term changes will include cooler stream temperatures, increased instream flows during summer months and increased spawning/rearing areas.

Measure of attribute changes:
CTUIR's goal is to recover a total of 50 stream miles in the Umatilla River Basin by the year 2005. Project areas recovered will have reduced fine sediments in salmon and steelhead redds to no more than 20%, bank stability will be greater than 90% and stream temperatures will be maintained at less than 68 degrees Fahrenheit.

Assessment of effects on project outcomes of critical uncertainty:
Post project physical and biological surveys, channel cross section measurements, photo point monitoring and water quality monitoring will determine project success.

Information products:
Annual reports provide information on project implementation, water quality and aquatic macroinvertebrate monitoring, physical survey data and public input/comments. Quarterly reports provide a continuous update on completed and proposed project activities.

Coordination outcomes:
Coordination with private landowners results in procurement of 15 year riparian easements. Coordination with other agencies has assisted CTUIR in acquiring cost share funds and technical support for habitat enhancement projects.

MONITORING APPROACH
Anadromous fish utilization (spawning and rearing) of enhanced stream corridor areas should be used as a yardstick to measure the overall success of the project. Post-project increases in fish spawning and/or rearing in enhanced stream reaches should be an indication of project success.

Provisions to monitor population status or habitat quality:
The Umatilla Basin Natural Production Monitoring and Evaluation (UBNPM&E) project coordinates with this project to conduct basinwide physical surveys for determining the availability of habitat. Spawning escapement counts and biological surveys conducted under the UBNPM&E project also assist in determining the availability and quality of habitat.

Data analysis and evaluation:
Data regarding water quality parameters, macroinvertebrate populations, and vegetative and stream channel changes will continuously be monitored in project areas. Data obtained will be compared to pre-project data to determine if water quality is improving, macroinvertebrate populations are increasing, riparian vegetation communties are recovering and if stream channels are more stable.

Information feed back to management decisions:
Data will be evaluated annually. Implementation measures and O & M may be modified if objectives are not being met.

Critical uncertainties affecting project's outcomes:
Extreme weather events (i.e. 50-100 year) flood events are unpredictable and cannot really be resolved. An overall watershed assessment should be undertaken to identify and address potential upland and headwater concerns which might impact the success of riparian enhancements.

EVALUATION
Short term elements: 1) riparian vegetation recovery, and 2) increased macroinvertebrates populations and diversity Long term elements: 1) stream channel narrowing, 2) cooler water temperatures, 3) increased stream flows, 4) increased stream channel shading, 5) decreased sediment loads, and 6) increased spawning and rearing.

Incorporating new information regarding uncertainties:
Project implementation will be modified to accommodate new concerns.

Increasing public awareness of F&W activities:
Continued "demonstration projects" provide the public with the opportunity to view ongoing habitat recovery. This is accomplished through news releases, public tours, and implementation of projects near public highways where passing motorists can view improvements over time. Continued outreach efforts include 1) scoping meetings to obtain public input and to educate participants regarding the need for habitat protection, mitigation and enhancement, 2) slide presentations to special interests groups, students and landowners, 3) tours of habitat enhancement project areas, and 4) "hands-on" habitat improvement workshops.

RELATIONSHIPS

RELATED BPA PROJECT	RELATIONSHIP
9000501 Umatilla Basin Natural Production M & E	
8802200 Umatilla River Basin Trap & Haul Program	

9101400 Umatilla Hatchery Satellites - Design & Construction

8343500 Umatilla Hatchery Satellite Facilities O & M

8710002 Umatilla River Subbasin Fish Habitat Improvement Project

8902401 Umatilla River WEID/Screens M & E

9000500 Umatilla Hatchery M & E

8343600 Umatilla Passage Facilities O & M

8902700 Power Repay/O&M for the Umatilla Basin Project

8403300 Umatilla Hatchery O & M

All listed projects, along with the Umatilla River Basin Anadonmous Fish Habitat Enhancement Project are components of the overall Umatilla Basin Restoration Program. The Habitat Enhancement project is specifically related to these other projects by enhancing watershed conditions and expanding available spawning and rearing areas in the basin.

RELATED NON-BPA PROJECT	RELATIONSHIP
Partners for Wildlife Program/USFWS	Part of overall Umatilla Basin Restoration Program

OPPORTUNITIES FOR COOPERATION:

The restoration of fisheries resources in the Umatilla Basin has been a coordinated effort between Tribal, local, state and federal agencies and the agricultural community. CTUIR's cooperators include Umatilla County, ODFW, NRCS, USFWS and the Umatilla Basin Watershed Council. Project examples include the Umatilla Basin Project, the Umatilla River Subbasin Salmon and Steelhead Production Plan, the Umatilla Basin Anadromous Fish Habitat Enhancement Project and the Umatilla Hatchery and associated artificial production plans. This coordination has continued and expanded through public scoping meetings formed to identify issues and develop creative solutions to land use problems in the basin. CTUIR intends to continue these coordination efforts.

COSTS AND FTE

1997 Planned: $274,092

FUTURE FUNDING NEEDS:

FY	$ NEED	% PLAN	% IMPLEMENT	% O AND M
1998	$285,000	40%	30%	30%
1999	$295,000	40%	30%	30%
2000	$305,000	30%	35%	35%
2001	$315,000	30%	35%	35%
2002	$325,000	30%	35%	35%

PAST OBLIGATIONS (incl. 1997 if done):

FY	OBLIGATED
1987	$96,494
1988	$237,274
1989	$191,206
1990	$285,548
1991	$194,159
1992	$174,130
1993	$121,439
1994	$194,038
1995	$233,096
1996	$290,710
1997	$274,092
TOTAL:	$2,292,186

Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects.

FY	OTHER FUNDING SOURCE	AMOUNT	IN-KIND VALUE

1998	BIA	$15,000
1999	BIA	$15,000
2000	BIA	$15,000
2001	BIA	$15,000
2002	BIA	$15,000

OTHER NON-FINANCIAL SUPPORTERS:
Oregon Department of Fish and Wildlife, Natural Resource Conservation Service, Umatilla County Planning, Umatilla Basin Watershed Council, Oregon Division of State Lands and U.S. Fish and Wildlife Service (also have provided direct funding).

LONGER TERM COSTS:
$350,000 - $400,000 annually (please note: property acquisition could raise these annual costs significantly).
Continued implementation and for operation and maintenance.

1997 OVERHEAD PERCENT: 34%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:
Overhead rates apply to total project costs, with the exception of sub-contracts developed for project implementation.

SUBCONTRACTOR FTE: Two to five (varies depending on annual implementation needs).